Seventh.—All garbage and refuse should be stored in containers until properly disposed of by burning or by burying.

Eighth.—Every foreman must supervise the carrying out of these regulations throughout the camp every seven days.

Ninth.—All instances of illness must be immediately reported to the railroad physician and no case definitely diagnosed as typhus or simulating typhus shall be removed from the camp without authority from the county health officer.

REGULATIONS PERTAINING TO THE ESTABLISHMENT OF OBSERVATION CAMPS FOR MEXICANS NEWLY ARRIVED AND ON THE PAYROLL OF THE RAILROAD COMPANIES.

The eradication of the body-louse is imperative for the prevention of the spread of typhus fever. Owing to the great prevalence of typhus in Mexico at the present time and owing to the undisputed probability of infection among the Mexican emigrants prior to their entrance into the United States, it is necessary that one or more camps be established for the observation of such new arrivals for a period of fifteen days in each case and that these camps be established apart from all other floating or fixed camps.

All regulations hereinbefore mentioned in this circular apply in full force to these observation camps also.

All men in such observation camps are hereby not prevented from engaging in work for the railroad within the section limits of such observation camps during the period of observation.

REPORTING ON NEW ARRIVALS.

Each railroad company shall immediately report to the State Board of Health the names and location of all newly arrived Mexicans as soon as they are placed on the payrolls of the company.

There have been no new cases of typhus reported since October 2nd. Such a result in controlling the disease may be considered as due to the co-operation of the following factors: (1) The United States Public Health Service which has supervised the delousing and inspection of all emigrant Mexicans at El Paso, Eagle Pass, Laredo and Brownsville. (2) The railroads of the State which have established quarantine camps at various points under State Board of Health supervision for the detention of newly arrived Mexican labor in such camps until the period of incubation shall have ended. Also, their issuance of posters, explanatory of the state's delousing regulations printed in English and Spanish for distribution in all section camps, and their compliance with the state regulations regarding the delousing of all Mexican section labor camps. (3) The state-wide inspection, and in part reinspection, of railroad Mexican labor camps by the State Board of Health.

References.

1. American Journal Med. Science, Philadelphia and New York, 1910, xxxix, 484-502.
2. United States Public Health Reports, April 30, 1915, p. 1304.
3. Compt. Rend. Acad. des Sciences, vol. 149, July 12, 1909, p. 157.
4. United States Public Health Reports, Feb. 18, 1910.

INTESTINAL INFECTION IN THE SACRAMENTO VALLEY.*

By F. F. GUNDRUM, M. D., and NATHAN G. HALE, M. D., Sacramento, Cal.

During the past six years we have repeatedly heard the opinion expressed by medical practitioners in and about Sacramento that typhoid fever was less severe in the valley than it was in the eastern states. Various reasons have been assigned for this alleged peculiarity of the disease, such as climate, habitual quinine taking, so common along the rivers, infection during childhood and the efficacy of various methods of treatment. Upon taking over the medical service of the Sacramento County Hospital, we soon found that we did have a true typhoid infection of usual severity with hæmorrhages, perforations and all the major and minor complications of this disease. Our average yearly number of these was about 75. On the other hand, perhaps 60 patients a year were admitted who "looked like typhoid" yet whose later clinical course was very different from the classical typhoid fever. It seemed likely that a relatively high proportion of the milder intestinal infections might have some bearing upon the cases. For two or three years we had intended to undertake some sort of investigation of this problem. Unfortunately the opportunity did not come until 1915, during which year the City of Sacramento began chlorination of the river water, whereafter our yearly group of intestinal infections promptly dropped in numbers from the usual 100 to 150 to about 40, 37 of which we can present to you today. The method of investigation was a series of agglutination tests against seven of the common intestinal invaders, pure cultures of which were kindly supplied by the State Hygienic Laboratory at Berkeley. The organisms used were B. Typhosus: para typhoid A. 7; para typhoid B. Homo; colon; para colon; dysentery Shiga, and dysentery Flexner. The dilution of the serum was one in 40, the preparations were allowed to stand one hour. The microscopical method was used. Several sera for controls were obtained from patients suffering with various other diseases. These were used for the purpose of checking up our organisms.

Results: Of 37 patients who "looked like typhoid" upon admission 20 (54%) agglutinated the typhoid bacillus; 7 (19%) agglutinated para typhoid B. Homo; 1 (3%) para colon and 1 (3%) dysentery (Flexner); no blood agglutinated para typhoid A. 7, colon or dysentery (Shiga). There were 8 (21%) in which none of the 7 organisms were agglutinated. Controls in which no agglutination occurred were nephritis; alcoholic gastro enteritis, 2; pleurisy, 1; pneumonia, 1; tuberculous meningitis, 1; cancer of bowel, 1; acute alcoholism, 1. The different groups were analyzed and tabulated for some of the commoner typhoid difficulties; namely, duration, maximum

* Read before the Northern District Medical Society April 18th, 1916.

temperature, maximum pulse, delirium, hemorrhage, perforation, rash, chills, and mortality.

Type	Duration days	Max. temperature	Max. pulse	Delirious	Haemorrhages	Perforation	Rash	Chills	Died
Typhoid	26.8	103	113	40%	15%	10%	50%	60%	10%
Para Typhoid B. (Homo)	14	102	107	0	0	0	28%	28%	
Para Colon	5	102	110	0	0	0	0	0	
Dysentery (Flexner)	7	102	110	0	0	0	0	0	
Dysentery (Shiga)	0	0	0	0	0	0	0	0	
Colon	0	0	0	0	0	0	0	0	
Para Typhoid	0	0	0	0	0	0	0	0	
None agglutinated	15	102	110	0	0	0	0	20%	

Dilution 1/40—1 hour.

CONCLUSIONS.

(1) Only a little more than half of our patients who came in "looking like a typhoid" gave an agglutination to the typhoid bacillus.

(2) Of this group the average duration of fever was 27 days, 40% were delirious, 15% had hemorrhage, 10% perforations, 50% rose spots and 10% died.

(3) 19% agglutinated para typhoid B. Homo.

(4) On this group duration of fever was 14 days, delirious none, hemorrhage none, perforation none, rash 28%.

(5) 3% (one case) agglutinated para colon and 3% dysentery of Flexner.

(6) 21% did not agglutinate any one of the seven organisms used.

(7) In this group duration was 15 days. There were no complications.

(8) Our "mild typhoids" were in about ½ the cases something else.

THREE CASES OF BERIBERI.

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Three cases of beriberi have been under observation recently in the Stanford medical service. These have been in no wise atypical but their occurrence shows that this disease is to be considered in California as well as in more endemic areas. There is no reason why it should not appear here if conditions of diet and hygiene are satisfactory for its development.

Case I.—(The first two cases have been reported in detail in the *Journal of the American Medical Association* (Jan. 13, 1917), and abstracts only are included here.) Lung Foo Sing, a Chinese man of 42 years, complained of tiredness and numbness of the legs. The condition was of gradual onset, progressive and first noted some six months before. Family history was unimportant. There were no symptoms referable to the respiratory, circulatory or gastro-intestinal systems, nor was there history or evidence of venereal infection. He had been in the United States for thirteen years, having visited China for more than a year just before the onset of symptoms.

Examination showed a slight cardiac irregularity after exercise, a slight pre-tibial edema, and numbness of both legs below the mid-thigh. A definite but mild peripheral neuritis was demonstrable. The diagnosis rested on the above findings, combined with an absence of fever, albuminuria and other cause for the polyneuritis. He had been exposed to beriberic conditions and his improvement was steady on a proper diet and an iron tonic. A silent tuberculosis could not be positively ruled out but would not have accounted for the full clinical picture, even if present.

Case II.—K. Saito, a Japanese man of 44 years, had been a domestic in the United States for twelve years, with no return to the Orient. He complained of headache, palpitation, insomnia and digestive disturbance. He suffered from dental caries and pyorrhea, had some cardiac hypertrophy with no decompensation and a moderate arterio-sclerosis. Systolic blood pressure was 165 (Faught). There was a deep pre-tibial edema and well-marked peripheral neuritis. The blood picture was not unusual. The stool showed a heavy clonorchis infestation. In the urine was a slight trace of albumin. On examination of the spinal fluid, a suspicious increase of globulins was noted but after a provocative injection of arsenobenzol, the fluid was normal in globulins, cells and Wassermann reaction. The renal excretion of 'phthalein was 85%.

Here the cardiac findings, edema, lack of fever and decided albuminuria, and a polyneuritis, pointed to beriberi. The low grade nephritis, arterio-sclerosis and pyorrhea do not seem responsible for the major condition. This man like the former had been exposed to a beriberic diet without however leaving the United States. The clonorchis infection seemed to have no bearing on the clinical condition.

Case III.—Leong Kee, a Chinese man of 25 years, complained of atrophy and paralysis of all four extremities. He was born in Kum Ling, a village near Canton, China, where he spent the first fifteen years of his life. As a child he frequently suffered from abdominal pain, but this is a common heritage of all Chinese children and is not significant. He had no fever or acute illness. His father and mother both died when he was about five years old. The patient was the eighth of ten children, all of whom are living and well except one who died in infancy.

The patient never did any work in China as he was a student. His diet there was the ordinary one of the country, in which the staple was the usual yellow rice, which was not highly polished. At the age of 15 years he went to San Francisco where he clerked in a Chinese grocery, after several years spending two years at the same trade in San Jose. While nominally a groceryman, he was really a lottery collector. Returning to San Francisco he lived there until March, 1916, when he went to Alaska for employment in the construction of tin cans in a salmon cannery. There his diet was chiefly Chinese imported dry foods, and fresh fish. Once in two weeks he was allowed beef, pork or bacon. The main article of diet was Hongkong rice. He returned from Alaska in September, 1916. It was during the